

Q3
Cont. --55. The device according to claim 29, further comprising a negative uniaxial on at least one substrate.--

--56. The device according to claim 29, further comprising a negative biaxial film on at least one substrate.--

REMARKS

Applicants' representatives wish to thank the Examiner for the courtesies extended during the personal interview conducted on August 15, 2001.


Minor changes are made to the specification. Claims 1-56 are currently pending in the application, claims 29-56 having been added by this Amendment. Reexamination and reconsideration of the application, as amended, are respectfully requested.

During the personal interview, the Examiner noted that FIG. 2 should be changed to show an electric field inducing window. Applicants herewith submit a Drawing Change Authorization Request along with a marked up copy of FIG. 2 showing an electric field inducing window. OK ✓

In the Office Action dated May 23, 2001, claims 1-28 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Applicants respectfully traverse this rejection for the reasons set forth below.

Specifically, in the Office Action, the Examiner states "it is confusing and unclear what is meant by 'an electric field inducing window' in said pixel region." Office Action at p. 2 (emphasis in original). As set forth in the Manual of Patent Examining Procedure, "[a]n Applicant is ordinarily permitted to use his or her own terminology, as long as it can be understood." M.P.E.P. § 608.01(g). As set forth in the specification at page 9, "the electric OK ✓

field inducing window is formed by patterning a hole or slit in the passivation layer 37 or the pixel electrode 13 in order to obtain an electric field distortion effect. Also, the electric field inducing window 51 may be formed by patterning partially or entirely the gate insulator 15.” Specification at p. 9, lines 3-8. Applicants respectfully submit that the usage and meaning of the term “electric field inducing window” is made clear by the specification and figures, and as such the term “electric field inducing window” is properly recited in the claims.

In addition, in the Office Action, regarding claim 6, the Examiner states “it is unclear what the shape of the thin film transistor (TFT) is. According to figure 2, TFTs do not have an L-shaped (sic) while the claimed invention disclose the L-shaped (sic).” It is known to those of ordinary skill in the art that an “L-shaped thin film transistor” is a thin film transistor having an channel region which is shaped like the letter “L”. Applicants submit that at least figure 2 of the present application illustrates a thin film transistor having an “L-shaped” channel region. Thus, Applicants assert that no clarification of the recitation of claim 6 is necessary. In view of the above remarks, Applicants respectfully submit that the rejection of the claims under 35 U.S.C. § 112, second paragraph is traversed. Accordingly, Applicants respectfully request that such rejection under 35 U.S.C. § 112, second paragraph be withdrawn. 

Claims 1-3, 5, and 7-22 are rejected as being anticipated by U.S. Patent No. 6,067,140 to Woo et al (“Woo”). The rejection of claims 1-3, 5, and 7-22 is respectfully traversed and reconsideration is requested. Claims 1-3, 5, and 7-22 are allowable over the cited references in that each of these claims recites a combination of elements including, for example, an electric field inducing window and a photo-alignment layer having a pre-tilt angle on at least one of the first and second substrate. The cited reference, Woo, fails to

disclose at least these features of the claimed invention. In particular, Woo does not teach or suggest an electric field inducing window. Accordingly, Applicants respectfully submit that claim 1 and claims 2-3, 5, and 7-22, which depend therefrom, are allowable over the cited references. (1)

Claims 27 and 28, which depend from claim 1, are rejected under 35 U.S.C. § 103(a) as being unpatentable over Woo. Applicants respectfully note that, as discussed above with regard to independent claim 1, Woo fails to disclose at least electric field inducing window and a photo-alignment layer having a pre-tilt angle on at least one of the first and second substrates, as recited in claim 1. As the Examiner notes, Woo does not disclose the claimed uniaxial film on at least one substrate, as recited in claim 27, or the claimed two-axial film on at least one substrate, as recited in claim 28. Thus, Applicants submit that the features recited by claims 27 and 28, could not have been obvious to one of skill in the art in view of Woo, as Woo fails to teach at least an electric field inducing window, a photo-alignment layer having a pre-tilt angle on at least one of the first and second substrates, and a uniaxial or two-axial film on at least one substrate. € (1)

Claims 4, and 23-26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Woo in view of U.S. Patent No. 6,141,074 to Bos et al. ("Bos"). Specifically, the Examiner states "Woo et al disclose the claimed invention as described above except for a pre-tilt angle is $1 \sim 5^\circ$. In fact, the pretilt angle in the LCD device is small as show by Bos et al., e.g., $0.1^\circ - 10^\circ$." Applicants respectfully submit that Bos does not cure the deficiencies in Woo, as discussed above. Specifically, claims 4 and 23-26 are allowable over the cited references in that each of these claims recites a combination of elements including, for example, an electric field inducing window and a photo-alignment layer having a pre-tilt angle on at least one of

the first and second substrate. The cited primary reference, Woo, fails to disclose at least ^① these features of the claimed invention. Moreover, the Examiner cites Bos as disclosing a range of pre-tilt angles which render the claimed ranges obvious. Applicants respectfully disagree that Bos renders the disclosed ranges obvious. Specifically, Bos teaches away from the claimed angles. For example, Bos states “[a] pretilt angle of 8° to about 9° *is not large enough* to stabilize the four domain structure at the zero voltage state.” Bos, column 9, lines 51-52 (emphasis added). If 8-9° degree pretilt angle *is not large enough*, as stated by Bos, ^② any pretilt angle less than 8-9° is inappropriate for a multi-domain LCD according to the teachings of Bos. Therefore, Applicants submit that Bos teaches away from the claimed pretilt angles (1~5°). Therefore, Applicants respectfully submit that claims 4 and 23-26 are allowable over the cited references.

Claim 6 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Woo in view of the article by Koma et al. entitled “No-Rub Multi-Domain TFT Using Surrounding-Electrode Method” (“Koma”). As discussed above with regard to claim 1, the primary ^① reference Woo fails to disclose an electric field inducing window and a photo-alignment layer having a pre-tilt angle on at least one of the first and second substrate, as recited in claim 6 by virtue of its dependency on claim 1. Koma does not teach or suggest these features. Applicants submit that the combination of Woo and Koma do not teach or suggest these features. Accordingly, Applicants respectfully submit that claim 6 is allowable over the cited references.

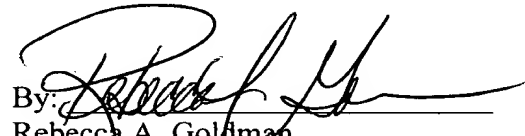
Applicants believe the foregoing remarks and amendments place the application in condition for allowance and early, favorable action is respectfully solicited.

If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. §1.136, and any additional fees required under 37 C.F.R. §1.136 for any necessary extension of time, or any other fees required to complete the filing of this response, may be charged to Deposit Account No. 50-0911. Please credit any overpayment to deposit Account No. 50-0911.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at (202) 624-1200 to discuss the steps necessary for placing the application in condition for allowance. All correspondence should continue to be sent to the below-listed address.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

Please make the following amendments to the paragraph beginning at page 2, line 23:

The conventional rubbing method has been widely used as a [mean] means for applying an uniaxial extension process on a liquid crystal alignment layer so as to obtain a wide area and a high speed process and to simplify the manufacturing processes. Rubbing a substrate coated with polymer with a cloth is a simple method.

IN THE CLAIMS:

28. (Amended) The device according to claim 1, further comprising a negative biaxial [two-axial] film on at least one substrate.